

Name:

Period:

LAB – Identifying Leaf Structures **KEY**

The leaf is the plant structure in which food is made. From the leaves, the phloem carries the food down to other parts of the plant. The outer layer of the leaf is the epidermis. The epidermis is covered with a waxy cuticle that protects the leaf and helps reduce the amount of water lost by the leaf. Within the leaf are two layers of cells called the palisade mesophyll and the spongy mesophyll. The cells in these layers contain chloroplasts. The chloroplasts are the food making structures in plant cells. Located on the lower epidermis are stomata (singula: stoma) each of which consists of two sausage-shaped guard cells that surround a small opening, or pore (the stoma). The stomata allow carbon dioxide to enter the leaf and water and oxygen to leave the leaf. The opening and closing of the stomata are regulated by the guard cells.

PROCEDURE:

1. Obtain a leaf.
2. Carefully break the leaf and attempt to peel away a thin piece of epidermis from the underside of the leaf.
3. Make a wet mount slide of the epidermis.

ANALYSIS AND CONCLUSION:

1. Do you see chloroplasts in the epidermis? **NO**
2. Why is it necessary for the epidermis to be nearly transparent?
To let the sunlight pass through
3. Do you see chloroplasts in the guard cells? **NO**
4. Why do you see **no** chloroplasts in the stomata?
The stomata are pores to let gases pass through
5. Name 3 gases that pass through the stomata.
Carbon dioxide enters, oxygen exits, and water vapor enters and exits
6. How will you determine whether there are more or fewer guard cells in the upper epidermis as compared to the lower epidermis?
Look at under a microscope
7. Which surface has more guard cells, the upper epidermis or the lower epidermis?
Lower

DRAW a picture of a FLOWER, with stem, roots, and leaves, indicating the PROCESS of **photosynthesis**. Things to include with labels: xylem, phloem, chloroplasts, stomata, guard cells, and exchange of gases (carbon dioxide, water, water vapor, oxygen).

